

REMARKS

Applicant proposes amending the specification, as indicated above, to overcome the Examiner's objection. Applicant also proposes amending the drawings for the reasons indicated below. Claims 1-16 remain pending and under current examination.

Regarding the Office Action:

In the Final Office Action, the Examiner rejected claims 1, 4-8, and 14-16 under 35 U.S.C. § 103(a) as being unpatentable over Nam et al. (U.S. Patent Application Publication No. 2002/0109217) ("Nam") in view of Bura (U.S. Patent No. 4,489,487) ("Bura") and either Cobbley et al. (U.S. Patent Application Publication No. 2004/0154956A1) ("Cobbley") or alleged "admitted prior art" (specification par. [0008]) ("AAPA"); rejected claims 2, 3, and 12 under 35 U.S.C. § 103(a) as being unpatentable over Nam in view of Bura and either Cobbley or AAPA as applied to claims 1 and 6 and further in view of Sasaki et al. (U.S. Patent No. 6,294,439) ("Sasaki"); rejected claim 9 under 35 U.S.C. § 103(a) as being unpatentable over Nam in view of Bura and either Cobbley or AAPA as applied to claims 1 and 6 and further in view of Rogowski (U.S. Patent No. 5,684,707) ("Rogowski"); rejected claim 10 under 35 U.S.C. § 103(a) as being unpatentable over Nam in view of Bura and either Cobbley or AAPA as applied to claims 1 and 6 and further in view of either Wojewnik, et al. (U.S. Patent No. 6,640,434) ("Wojewnik") or Varaprasad et al. (U.S. Patent No. 5,910,854) ("Varaprasad"); rejected claim 11 under 35 U.S.C. § 103(a) as being unpatentable over Nam in view of Bura and either Cobbley or AAPA as applied to claims 1 and 6 above and further in view of either Wojewnik or Varaprasad as applied to claim 10 and further in view of Rogowski; rejected claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Nam in view of Bura and either Cobbley or AAPA and Sasaki applied to claim 12 and further in view of Rogowski; and objected to the

specification for informalities. Applicant traverses the objection and rejections for the following reasons.¹

Regarding the Amendments to the Drawings:

Applicant has amended FIGS. 18A, 18B, 18C, 18D, 19, and 20 to include the legend “Prior Art.” Accordingly, Applicant files herewith three (3) sheets of drawings, each labeled “Replacement Sheet,” containing amended FIGS. 18A, 18B, 18C, 18D, 19, and 20. Applicant requests that these replacement sheets be made of official record in the above-identified patent application. If the drawings for any reason are not in full compliance with the pertinent statutes and regulations, please so advise the undersigned.

Regarding the Objection to the Specification:

Applicant has amended the specification, as indicated above, to overcome the Examiner’s objection for informalities. Specifically, the Examiner pointed out that “throughout the specification the word “stack” is used when it appears “stuck” has the intended meaning” (Final Office Action, p. 7. Applicant has made the appropriate corrections to the specification and accordingly deems the objection overcome.

Rejection of Claims 1, 4, and 6-8 under 35 U.S.C. § 103(a):

Applicant traverses the rejection of claims 1, 4, and 6-8 under 35 U.S.C. § 103(a) as being unpatentable over Nam in view of Bura and either Cobbley or AAPA.² Applicant respectfully disagrees with the Examiner’s arguments and conclusions. A *prima facie* case of obviousness has not been established.

¹ The Office Action contains statements characterizing the related art, case law, and the claims. Regardless of whether any such statements are specifically identified herein, Applicant declines to automatically subscribe to any statements in the Office Action.

² Applicant notes that the Examiner did not provide any citation to AAPA in the context of this rejection. Applicant therefore cannot respond to the Examiner’s inclusion of AAPA in the header of the rejection, since no arguments were presented as to what AAPA constitutes.

“To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).” M.P.E.P. § 2142, 8th Ed., Rev. 2 (May 2004), p. 2100-128.

A *prima facie* case of obviousness has not been established because, among other things, neither Nam, Bura, Cobbley nor AAPA, nor their combination, teaches or suggests each and every element of Applicant’s claims.

To begin, Nam does not disclose each and every element of Applicant’s claimed invention, despite the Examiner’s allegations. Independent claim 1, as amended, recites

sectioning semiconductor elements from a semiconductor wafer to provide at least first and second semiconductor elements, ... adhering the first semiconductor element to the semiconductor device forming base material by the element adhesive film; and adhering the second semiconductor element on the first semiconductor element by the element adhesive film.

Similarly, independent claim 6, as amended, recites “an element adhesion section for adhering the first semiconductor element to the semiconductor device forming base material by the element adhesive film and adhering the second semiconductor element on the first semiconductor element by the element adhesive film.”

In contrast to the claimed invention, Nam teaches a first chip 64 and a second chip 72 bonded on lead frame 60. *See Nam*, Fig. 4 and corresponding description. However, the first chip 64 is bonded directly on lead frame 60, and second chip 72 is bonded to die pad 66 through nonconductive adhesive tape 68. Nam’s use of nonconductive adhesive tape 68 placed on bonding pad 66, followed by adhering second chip 72 on nonconductive adhesive tape 68 clearly does not constitute Applicant’s claimed “adhering the second semiconductor element on the first

semiconductor element by the element adhesive film,” as recited in claim 1, and “adhering the first semiconductor element to the semiconductor device forming base material by the element adhesive film and adhering the second semiconductor element on the first semiconductor element by the element adhesive film,” as recited in claim 6. Nam’s adjacent placement of first chip 64 and second chip 72 on die pad 66 is clearly different from the claimed invention.

Furthermore, Nam teaches that “[a]fter adhesive tape 68 is placed on die pad 66 of lead frame 60, step 35 attaches second chip 72 to die pad 66 through adhesive tape 68. A die pick-up tool 54 picks up second chip 72 from a chip provider, such as a wafer table 56, and places second chip 72 on adhesive tape 68.” Nam, par. [0030]. Adhesive tape 68 is *first* placed on the die pad of the lead frame, *before* movement of the first and second chips. *See also* Nam, Fig. 4. Therefore, Nam never moves first chip 64 or second chip 72 once stuck to the adhesive tape 68. This clearly does not constitute Applicant’s claimed “sticking an element adhesive film, which is sectioned according to the shape of one of the semiconductor elements, to each of the back surfaces of the picked-up first and second semiconductor elements in order of their sectioning,” as recited in claim 1, and “a film sticking section for sticking an element adhesive film, which is sectioned according to the shape of one of the semiconductor elements, to each of the back surfaces of the picked-up first and second semiconductor elements,” as recited in claim 6.

Turning to Bura’s disclosure, the Examiner applied Bura to teach “that applying adhesive to the semiconductor element rather than the base material is advantageous because the semiconductor element provides an accurate [gauge] for how much adhesive to apply (column 2, lines 13-17)” (Final Office Action, p. 2). While Bura does teach applying a double-sided adhesive tape to a surface of a chip (col. 3, lines 39-57), none of Bura’s embodiments teach or suggest “adhering the second semiconductor element on the first semiconductor element by the

element adhesive film,” as recited in claims 1 and 6. For at least this reason, Bura fails to cure Nam’s deficiencies pertaining to independent claims 1 and 6.

Turning to Cobbley’s disclosure, the Examiner applied Cobbley to teach “that stacking of semiconductor elements improves the packing density of a semiconductor board so that the boards can have a smaller footprint” and “the semiconductor elements are stacked to each other before being applied to the board” (Final Office Action, p. 3). While Cobbley does disclose that “[g]enerally, stacked die packages, such as those illustrated in FIGS. 2 and 3, are built from the surface of the substrate upward. [...] a first die is stacked on top of the substrate and adhesively attached to the substrate. Next, a second die is stacked on top of the first die and adhesively attached to the substrate” (par. [0024]), Applicant submits that Cobbley actually teaches away from the claimed invention (and the other cited references). In particular, Cobbley’s subsequent paragraph discloses “several problems exist with the prior design techniques [quoted above]” (par. [0025]). Cobbley then teaches the “advantage of the technique of forming the entire stack prior to attaching it to the substrate” (par. [0032]), which teaches away from Nam’s adjacent placement of first and second chips (Nam, Fig. 4), Bura’s adjacent placement of chips (Bura, Fig. 3), and the claimed invention.

The Examiner’s application of the secondary references in an attempt to cure Nam’s deficiencies still fails to establish *prima facie* obviousness. The Examiner’s application of Bura, Cobbley, and AAPA (Final Office Action, pp. 2-3) still does not remedy Nam’s deficiencies pointed out herein. That is, Nam, Bura, Cobbley, and AAPA, taken alone or in combination, fail to teach or suggest at least Applicant’s claimed

sectioning semiconductor elements from a semiconductor wafer to provide at least first and second semiconductor elements, ... adhering the first semiconductor element to the semiconductor device forming base material by the element adhesive film; and adhering the second semiconductor element on the first semiconductor element by the element adhesive film (claim 1),

or Applicant's claimed

an element adhesion section for adhering the first semiconductor element to the semiconductor device forming base material by the element adhesive film and adhering the second semiconductor element on the first semiconductor element by the element adhesive film (claim 6).

Applicant has therefore established that Nam, Bura, Cobbley, and AAPA, taken alone or in combination, do not teach or suggest each and every element of Applicant's independent claims 1 and 6. Accordingly, the Examiner's reliance on these references fails to establish *prima facie* obviousness. Independent claims 1 and 6 are allowable, and dependent claims 4, 5, 7, and 8 are also allowable at least by virtue of their respective dependence from allowable base claim 1 or 6. Therefore, the improper 35 U.S.C. § 103(a) rejection should be withdrawn.

Rejection of Claims 2, 3, and 12 under 35 U.S.C. §103(a) (Nam/Bura/Cobbley/AAPA/Sasaki):

Rejection of Cl. 9 under §103(a) (Nam/Bura/Cobbley/AAPA/Rogowski):

Rejection of Cl. 10 under §103(a) (Nam/Bura/Cobbley/AAPA/Wojewnik/Varaprasad):

Rejection of Cl. 11 under §103(a) (Nam/Bura/Cobbley/AAPA/Wojewnik/Varaprasad/Rogowski):

Rejection of Claim 13 under 35 U.S.C. § 103(a) (Nam/Bura/Cobbley/AAPA/Sasaki/Rogowski):

Applicant respectfully traverses these rejections of dependent claims 2, 3, and 9-13 under 35 U.S.C. § 103(a). Applicant disagrees with the Examiner's arguments and conclusions. A *prima facie* case of obviousness has not been established.

These five rejections address dependent claims 2, 3, and 9-13, and the Examiner applied the additional cited references (indicated above) only to specific elements of these dependent claims. See Final Office Action, pp. 4-7. Dependent claims include everything recited in the base claim. See M.P.E.P. § 608.01(n)(III). As noted above, Sasaki, Rogowski, Wojewnik, and Varaprasad added to Nam, Bura, Cobbley, or AAPA, taken alone or in combination do not teach each and every element of independent claims 1 and 6. Thus, the five 35 U.S.C. § 103(a) rejections of the dependent claims must also fail.

The Examiner has therefore not met at least one of the essential criteria for establishing a *prima facie* case of obviousness. Thus, dependent claims 2, 3, and 9-13 are allowable for the reasons presented herein, and at least by virtue of their respective dependence from allowable base claim 1 or 6. Therefore, the improper 35 U.S.C. § 103(a) rejection of claims 2, 3, and 9-13 should be withdrawn.

Conclusion:

Applicant respectfully requests that this Amendment under 37 C.F.R. § 1.116 be entered by the Examiner, placing claims 1-16 in condition for allowance. The proposed amendments to the specification overcome the Examiner's objection, and do not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner. Therefore, this Amendment should allow for immediate and favorable action by the Examiner.

Finally, Applicant submits that the entry of the Amendment after Final would place the application in better form for appeal, should the Examiner continue to dispute the patentability of the pending claims.

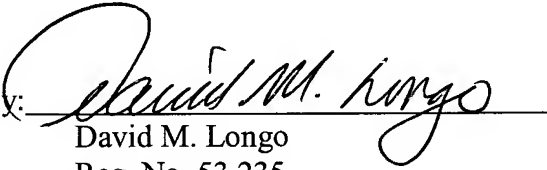
Applicant encourages the Examiner to contact the undersigned representative by telephone to discuss any remaining issues or to resolve any misunderstandings.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: April 15, 2005

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